

Name: _____

Date: _____

Exam: Function Reflections (EXAM version 618)

1. (worth 9 points) Let function f be defined by the polynomial below:

$$f(x) = -8x^4 + 5x^3 + 3x^2 + 2x - 7$$

Draw lines that match each function reflection with its polynomial:

Reflections

$-f(-x)$ •

$f(-x)$ •

$-f(x)$ •

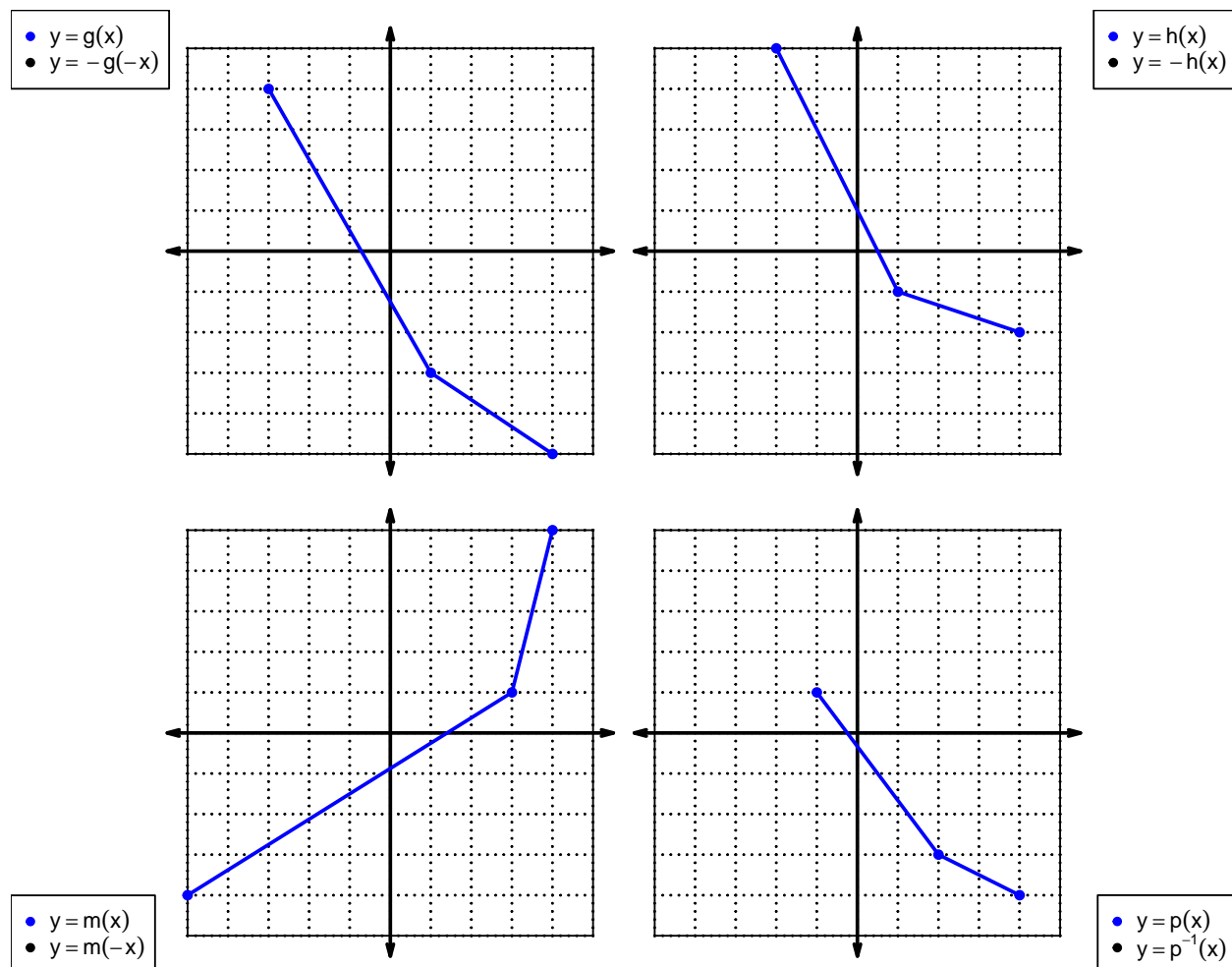
Polynomials

• $8x^4 + 5x^3 - 3x^2 + 2x + 7$

• $8x^4 - 5x^3 - 3x^2 - 2x + 7$

• $-8x^4 - 5x^3 + 3x^2 - 2x - 7$

2. (worth 20 points) In each xy plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The x axis is horizontal and the y axis is vertical (as typical), and the scale is equal on both axes.



Exam: Function Reflections (EXAM version 618)

For all questions on this page, the functions f , g , and h are defined by the table below.

x	$f(x)$	$g(x)$	$h(x)$
1	9	3	5
2	8	9	6
3	5	7	2
4	2	1	3
5	6	4	9
6	3	8	8
7	1	6	1
8	4	5	7
9	7	2	4

3. (worth 3 points) Evaluate $h(8)$.

4. (worth 3 points) Evaluate $f^{-1}(9)$.

5. (worth 3 points) Assuming g is an **even** function, evaluate $g(-2)$.

6. (worth 3 points) Assuming f is an **odd** function, evaluate $f(-6)$.

Exam: Function Reflections (EXAM version 618)

7. (worth 15 points) A function, f , is **even** if $f(x) = f(-x)$ for all x in the domain. A function, g , is **odd** if $g(x) = -g(-x)$ for all x in the domain.

Let polynomial p be defined with the following equation:

$$p(x) = x^3 + x$$

- a. Express $p(-x)$ as a polynomial in standard form.

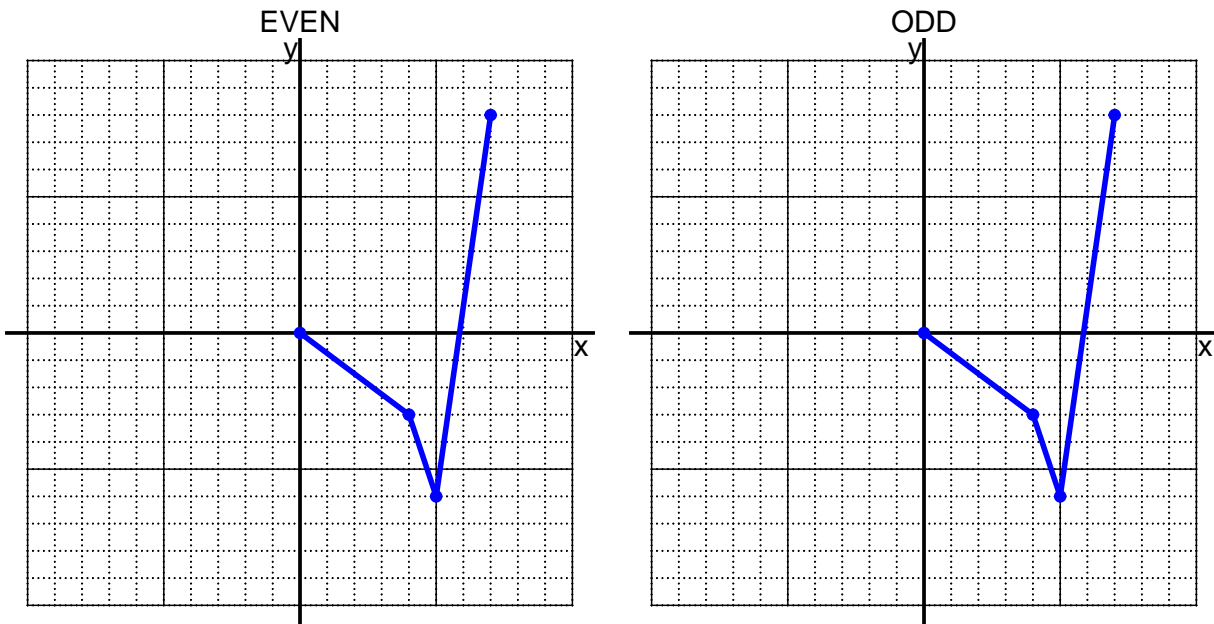
- b. Express $-p(-x)$ as a polynomial in standard form.

- c. Is polynomial p even, odd, or neither?

- d. Explain how you know the answer to part c.

Exam: Function Reflections (EXAM version 618)

8. (worth 10 points) I have drawn half of a function. Draw the other half to make it even or odd.



9. (worth 10 points) Let function f be defined with the equation below.

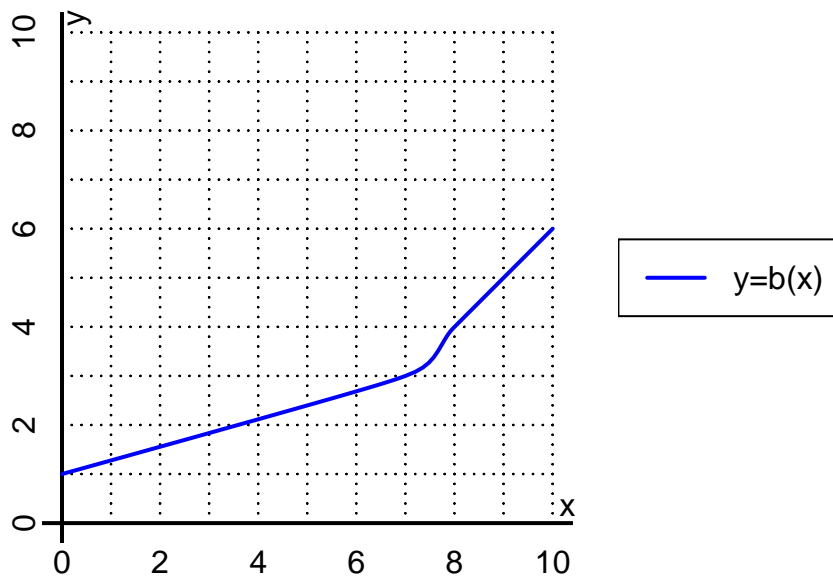
$$f(x) = \frac{x}{7} - 3$$

a. Evaluate $f(63)$.

b. Evaluate $f^{-1}(5)$.

Exam: Function Reflections (EXAM version 618)

10. (worth 6 points) The function b is represented by the curve $y = b(x)$ graphed below.



a. Evaluate $b(9)$.

b. Evaluate $b^{-1}(4)$.

Exam: Function Reflections (EXAM version 618)

11. (worth 18 points) Function f is defined by the table below.

a. Complete the columns for $-f(x)$ and $f(-x)$ and $-f(-x)$.

x	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	-5			
-1	6			
0	0			
1	6			
2	-5			

b. Is function f even, odd, or neither?

c. How do you know the answer to part b?